

AHA SCIENTIFIC STATEMENT

2026 Dietary Guidance to Improve Cardiovascular Health: A Scientific Statement From the American Heart Association

Alice H. Lichtenstein, DSc, FAHA, Chair; Amit Khera, MD, FAHA, Vice Chair; Cheryl A.M. Anderson, PhD, MPH, FAHA; Lawrence J. Appel, MD, MPH, FAHA; Dana M. DeSilva, PhD, RD; Christopher Gardner, PhD, FAHA; Frank B. Hu, MD, PhD, FAHA; Daniel W. Jones, MD, FAHA; Kristina S. Petersen, PhD, APD, FAHA; on behalf of the American Heart Association

ABSTRACT: Poor diet quality is strongly associated with elevated cardiovascular disease morbidity and mortality risk. This American Heart Association scientific statement for food-based cardiovascular health optimization and cardiovascular disease risk reduction guidance summarizes available evidence and provides contextual guidance for the key features of heart-healthy dietary patterns. It enumerates collateral benefits of adopting a heart-healthy dietary pattern in terms of nutrient intake adequacy and compatibility with other chronic disease risk reduction guidance. The features of a heart-healthy dietary pattern include (1) adjusting energy intake and expenditure to achieve and maintain a healthy body weight; (2) eating plenty of vegetables and fruits and choosing a wide variety; (3) choosing foods made mostly with whole grains rather than refined grains; (4) choosing healthy sources of protein; (5) choosing sources of unsaturated fats in place of sources of saturated fat; (6) choosing minimally processed foods instead of ultraprocessed foods; (7) minimizing intake of added sugars in beverages and foods; (8) reducing sodium intake by choosing foods low in sodium and preparing foods with minimal or no salt; and (9) if alcohol is not consumed, do not start; if alcohol is consumed, limit intake.

Key Words: AHA Scientific Statements ■ cardiovascular diseases ■ diet ■ food ■ nutrition policy ■ risk reduction behavior

This scientific statement supersedes the “2021 Dietary Guidance to Improve Cardiovascular Health: A Scientific Statement from the American Heart Association”.¹ Poor diet quality remains a significant contributor to increased risk of cardiovascular disease (CVD) morbidity and mortality. The purpose of this scientific statement is to provide a concise update that summarizes food-based cardiovascular health optimization and CVD risk reduction guidance related to aspects of a heart-healthy dietary pattern. The target population is the general population across the span of CVD risk (low to high), including those with established disease. This statement (1) reinforces the importance of focusing on heart-healthy dietary patterns rather than on single foods or nutrients; (2) highlights the necessity of adopting heart-healthy eating habits early in life and maintaining them across the life course; (3) organizes the guidance into features to facilitate adoption of a dietary pattern that supports cardiovascular health;

and (4) recognizes the additional benefits that come with adoption of a heart-healthy dietary pattern beyond CVD. (The [Supplemental Material](#) includes the literature review protocol, evidence tables, and included and excluded articles.)

DIETARY PRINCIPLES

Focus on Dietary Patterns

Since 2021, American Heart Association dietary guidance has focused on overall dietary patterns.¹ Dietary patterns encompass all foods and beverages consumed throughout the day, whether prepared and consumed at home or outside the home. Adherence to heart-healthy dietary patterns is associated with optimal cardiovascular health.^{1,2} Food-based dietary pattern guidance is designed to achieve nutrient adequacy; to support cardiovascular health and general well-being; and to provide

Supplemental Material is available at <https://www.ahajournals.org/doi/suppl/10.1161/CIR.0000000000001435>.

© 2026 American Heart Association, Inc.

Circulation is available at www.ahajournals.org/journal/circ

flexibility to accommodate personal preferences, ethnic and religious practices, and life stages. In general, heart-healthy dietary patterns contain primarily vegetables and fruits, whole grains, healthy sources of protein, liquid nontropical plant oils (eg, soybean, canola, olive oils), and minimally processed foods. Dietary patterns higher in plant-based foods and lower in animal products have been associated with lower coronary heart disease risk and more favorable coronary heart disease risk factors and metabolome profiles.³ Heart-healthy dietary patterns are also low in beverages and foods with high amounts of added sugars, saturated fat, and sodium.

Consume Heart-Healthy Dietary Patterns Across the Life Course

The origins of CVD begin early in life. Establishing a heart-healthy dietary pattern is fundamental to maintaining cardiovascular health throughout the life course. The relevance of diet quality on cardiovascular health starts as early as the prenatal period. Prepregnancy maternal dietary patterns and other lifestyle behaviors are associated with risk of gestational diabetes and hypertensive disorders of pregnancy.⁴ Dietary patterns early in life are linked not only to childhood cardiovascular parameters such as obesity, metabolic syndrome, hypertension, dyslipidemia, and type 2 diabetes but also to lifelong dietary patterns and cardiovascular risk.^{5–7} Thus, a heart-healthy dietary pattern is recommended for children starting at 1 year of age and is a key component of a favorable cardiovascular health trajectory throughout adulthood.⁸ Although older adults have unique health considerations that affect dietary intake, heart-healthy dietary patterns provide similar cardiovascular benefits in this group.^{9,10}

Dietary habits and dietary patterns are shared, experienced, and transmitted among household members.^{11,12} They are learned early in life, although there are key inflection points where dietary trajectories can change along the life course, including childhood, adolescence, and young adulthood.¹³ Role modeling heart-healthy dietary patterns at every life stage can help sustain cardiovascular health across the life course and encourage favorable intergenerational transmission of positive lifestyle behaviors.¹⁴ It is recognized that dietary needs at specific stages across the life course may change. Such needs should be discussed with a person's clinician.

Choose Foods and Beverages Consistent With These Features Regardless of Where They Are Procured, Prepared, or Consumed

The dietary guidance in this document applies to all foods and beverages. Food is procured, prepared, and consumed in multiple venues such as homes, commercial establishments, institutions (eg, schools, workplaces,

hospitals), and recreational venues. It is important to be mindful of heart-healthy dietary features when choosing foods and beverages regardless of time, location, or setting. This will facilitate achieving a heart-healthy dietary pattern that encourages the availability of heart-healthy choices and supports enactment of policies that favorably affect food and beverage options.

FEATURES OF DIETARY PATTERNS THAT PROMOTE CARDIOVASCULAR HEALTH

The Table and Figure summarize the features of a heart-healthy dietary pattern.

Feature 1: Adjust Energy Intake and Expenditure to Achieve and Maintain a Healthy Body Weight

Preserving a healthy body weight across the life course is central to optimizing cardiovascular health. Currently, obesity affects 21% of children and adolescents, and 40% of adults in the United States.¹⁵ Excess body fat contributes to the development of type 2 diabetes, hypertension, and cardiovascular-kidney metabolic syndrome, which negatively influences cardiovascular health.¹⁷

Excess energy intake coupled with inadequate physical activity results in positive energy balance and subsequent overweight and obesity. Individual energy needs depend on a number of factors such as age, sex, height, weight, physical activity level, and pregnancy or lactation status. Energy intake should be adjusted to achieve and maintain a healthy body weight. Preschool-aged children should be physically active throughout the day. Older children and adolescents should engage in at least 60 minutes of moderate to vigorous physical activity daily.

Table. Features of a Dietary Pattern to Promote Cardiovascular Health

1. Adjust energy intake and expenditure to achieve and maintain a healthy body weight
2. Eat plenty of vegetables and fruits and choose a wide variety
3. Choose foods made mostly with whole grains rather than refined grains
4. Choose healthy sources of protein
a. Shift from meat to plant sources (legumes and nuts)
b. Regularly consume fish and seafood
c. Select low-fat or fat-free dairy products instead of full-fat dairy products
d. If red meat is desired, choose lean cuts, avoid processed forms, and limit portion size
5. Choose sources of unsaturated fat in place of sources of saturated fat
6. Choose minimally processed foods instead of ultraprocessed foods
7. Minimize intake of added sugars in beverages and foods
8. Choose foods low in sodium and prepare foods with minimal or no salt
9. If alcohol is not consumed, do not start; if alcohol is consumed, limit intake

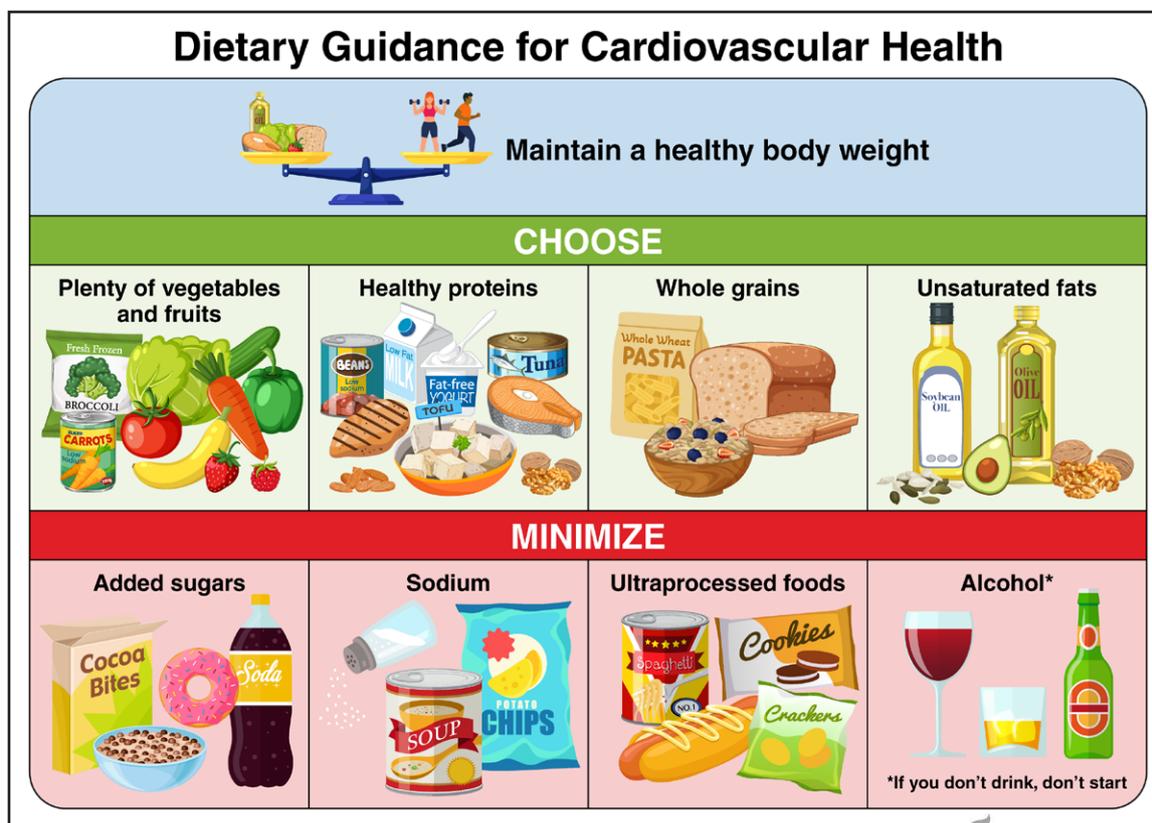


Figure. Features of a dietary pattern to promote cardiovascular health.



Adults should engage in at least 150 min/wk of moderate to vigorous physical activity.¹⁸ All individuals should be encouraged to participate in muscle-strengthening activities throughout the life course.¹⁹

A range of dietary patterns, including healthy versions of commonly named diets when implemented as intended such as DASH (Dietary Approaches to Stop Hypertension), Mediterranean style, pescetarian, and ovo/lacto vegetarian, can support cardiovascular health and are aligned with achieving and maintaining a healthy body weight.²⁰ Some popular weight loss diets may result in short-term benefits but have uncertain long-term cardiovascular impact and can worsen cardiovascular risk factors.²¹ Ultimately, understanding cultural factors, personal preferences, ethnic and religious practices, life stages, and socioeconomic contributors can assist in counseling and promoting the adoption of a heart-healthy dietary pattern that optimizes energy balance and promotes long-term adherence on an individual level.

Feature 2: Eat Plenty of Vegetables and Fruits and Choose a Wide Variety

Whole or minimally processed vegetables and fruits are core components of heart-healthy dietary patterns. These patterns are consistently associated with cardiovascular health, including blood lipids, blood pressure, and type 2 diabetes control.^{22–26} Vegetables and fruits provide

essential nutrients and in their whole form, rather than juice, provide much-needed dietary fiber. Practical considerations related to spoilage, convenience, availability, and cost can be mitigated by incorporating most forms of vegetables and fruits, including fresh, frozen, and canned. If frozen or canned varieties are purchased, they should preferably not contain added sugars or sodium.

Feature 3: Choose Foods Made Mostly With Whole Grains Rather Than Refined Grains

Whole grains are defined by the presence of all 3 components of the grain kernel—the starchy endosperm, inner germ, and outer bran—and provide a complex matrix of dietary fiber, vitamins, minerals, and other bioactive compounds.²⁷ Commonly consumed whole grains are whole wheat, oats, brown rice, quinoa, barley, and rye. A substantial body of observational evidence from large cohort studies demonstrates that regular consumption of whole-grain foods compared with infrequent intake is associated with lower risks of CVD, coronary heart disease, stroke, type 2 diabetes, and metabolic syndrome and more favorable cardiovascular risk factors, including blood pressure, blood lipids, and glycemic control.²⁸ Randomized controlled feeding trials have demonstrated that replacing refined grains with whole grains leads to improvements in cardiovascular risk factors.²⁹ In addition, diets high in fiber and whole grains have been linked to

favorable modulation of the gut microbiota, laxation, and a reduction in inflammatory cytokines.^{30,31}

Feature 4: Choose Healthy Sources of Protein

Protein is an essential nutrient for growth, development, and overall health, but the relationship between protein quantity and cardiovascular health is uncertain.³² Thus, recommendations for protein center on promoting heart-healthy protein sources which are determined predominantly by fatty acid profile and fiber content. Given the broad range of protein-rich foods, particularly in terms of these associated components, this feature is divided into subgroups.

Shift From Meat to Plant Sources (Legumes and Nuts)

Legumes (beans, peas, and lentils) and nuts are good sources of protein and are rich in unsaturated fat and fiber. Dietary patterns higher in legumes and lower in red and processed meat have been associated with lower CVD and coronary heart disease risk.^{33–35} Likewise, dietary patterns higher in nuts have been associated with lower CVD and all-cause mortality risk.^{36,37} Such dietary patterns, along with additional healthy lifestyle behaviors, are associated with lower CVD risk. The availability of plant-based meat alternatives can help diversify protein choices but requires some caution because many are ultraprocessed and come with added sugars, sodium, stabilizers, and preservatives.³⁸

Regularly Consume Fish and Seafood

Prospective cohort studies have concluded that dietary patterns containing nonfried fish and seafood are associated with lower overall CVD events and myocardial infarction risk.^{39–41} These associations may be due to the omega-3 fatty acid content of the fish and seafood, replacement of other sources of animal protein that tend to be high in saturated fat and low in unsaturated fat, or both.³⁹ Fish oil supplementation alone has not been demonstrated to lower CVD risk in otherwise healthy adults and in some people may be associated with an increased risk of atrial fibrillation.^{42–44}

Select Low-Fat or Fat-Free Dairy Products Instead of Full-Fat Dairy Products

The potential benefits of low-fat and fat-free dairy products compared with full-fat dairy products are not without controversy and continue to be debated. A recent systematic review indicates that some dietary patterns that include low-fat dairy are associated with a lower CVD risk.²³ However, another systematic review specific to food sources of saturated fat concluded that limited evidence suggests that substituting higher-fat dairy with lower-fat dairy results in similar CVD risk.⁴⁵ This review found that conclusions could not be drawn about the relationship between higher-fat dairy and lower-fat dairy on

blood lipids, blood pressure, and CVD mortality because of inadequate evidence. Of note, the effect of replacing full-fat dairy products with nonfat and low-fat dairy products or other nondairy sources of unsaturated fat shifts the composition of dietary patterns toward higher unsaturated to saturated fat ratios, those associated with most favorable cardiovascular health.⁴⁶

Independently of fat content, the possibility has been raised that there are cardiovascular benefits of consuming fermented dairy such as yogurt and kefir that contain live bacteria because of modifications they induce in the gut microbiota.⁴⁷ However, the long-term clinical implications of these changes have yet to be determined.⁴⁸

Given the available evidence, it would be prudent at this time to continue prior guidance to replace major sources of saturated fat, including dairy fat, with sources of unsaturated fat and to choose nonfat or low-fat dairy products.¹

If Red Meat Is Desired, Choose Lean Cuts, Avoid Processed Forms, and Limit Portion Size

The effect of red and processed meat on CVD risk factors depends on the replacement food. Replacing red meat, including lean, unprocessed meat, with healthier sources of protein, especially plant sources, improves CVD risk factors.^{22,49} Substitution analyses based on large cohort studies concluded that the replacement of red and processed meat with alternative foods (legumes, nuts, poultry, dairy, and eggs) was associated with a lower coronary heart disease risk.⁵⁰ The associations were strongest for processed than unprocessed red meat. Approaches to reduce intake include choosing lean cuts and limiting portion size and frequency of consumption.

The term processed meats generally refers to meat, poultry, or seafood products produced by smoking, curing, or salting or the addition of chemical preservatives.⁵¹ Common examples include bacon, sausage, hot dogs, and deli meat (eg, turkey, ham, pepperoni, and salami). In addition to a meat base, common ingredients include salt, nitrates, flavor enhancers, binders and fillers, and smoke flavor. These additions are used to extend shelf life and to enhance flavor, texture, and appearance. Substitution analyses indicate that the replacement of processed meats with other protein sources is associated with lower mortality rates.⁵²

In summary, dietary patterns higher in plant sources of protein and lower in animal sources of protein are associated with better cardiovascular health. If consuming animal protein, minimize processed meats, and prioritize lean cuts of unprocessed meat, including poultry; and reduce total intake, limit portion size and frequency of consumption.

Feature 5: Choose Sources of Unsaturated Fat in Place of Sources of Saturated Fat

Clinical trial evidence consistently shows that replacing sources of saturated fat with sources polyunsaturated

fat and, to a lesser extent, sources of monounsaturated fat reduces low-density lipoprotein cholesterol concentrations, a causal risk factor for CVD.^{53,54} In alignment, modeling analyses indicate that replacing sources of saturated fat with polyunsaturated fat is associated with reduced coronary heart disease risk.^{55,56}

Animal fats (eg, beef tallow and butter) and tropical oils (eg, coconut oil, cocoa butter, and palm oil) are relatively high in saturated fat, whereas nontropical plant oils (eg, soybean, canola, and olive oils) are relatively high in unsaturated fat. Strong evidence shows that replacing butter with plant oils and spreads containing predominantly unsaturated fat decreases low-density lipoprotein cholesterol concentrations.²² Limited evidence shows that substituting butter with plant oils and spreads with predominantly unsaturated fat is associated with a lower CVD morbidity and mortality risk.^{22,57} Similarly, replacement of beef fat/tallow or lard with nontropical plant oils lowers low-density lipoprotein cholesterol concentrations.^{58–61} Replacement of tropical plant oils with nontropical plant oils also lowers low-density lipoprotein cholesterol concentrations.^{22,62}

In summary, as part of heart-healthy dietary patterns, nontropical plant sources of fat should be used as part of food preparation in place of animal fats and tropical oils.⁴⁵

Feature 6: Choose Minimally Processed Foods Instead of Ultraprocessed Foods

Food processing has resulted in both beneficial and adverse effects. Benefits include improved food safety; extended shelf life; reduced costs; nutrient fortification to correct inadequacies; and preservation of nutritional, functional, and sensory qualities.^{63–66} Drawbacks include high levels of sodium, added sugars, and ingredients not normally present in food, as well as modifications that remove healthful components such as fiber and some nutrients. For consistency, in this document, this category of foods is referred to as ultraprocessed foods. Variability that has emerged in terminology can be attributed to the lack of a generally accepted classification system. The most commonly used one is Nova, which classifies ultraprocessed foods based on the extent and purpose of industrial processing and if they contain cosmetic additives or ingredients not commonly used in home cooking without factoring in nutrient content.⁶⁷

Worldwide, the sales of ultraprocessed foods are relatively high and are projected to increase. The major concern with this trend is the strong evidence base linking dietary patterns high in ultraprocessed foods to multiple adverse health outcomes, including overweight and obesity, CVDs, type 2 diabetes, and all-cause mortality.^{67–70} Evidence is limited for mechanisms of actions linking dietary patterns high in ultraprocessed foods to

adverse health outcomes. This may be due to the wide range of potential causal factors in the broad category of foods classified as ultraprocessed. Nevertheless, evidence consistently indicates that efforts should be made to promote the benefits of choosing minimally processed foods and to facilitate a shift away from ultraprocessed in the marketplace.⁷¹ If successful, the latter will lead to greater availability of minimally processed foods in the various venues where food is produced or eaten.

Feature 7: Minimize Intake of Added Sugars in Beverages and Foods

Added sugars are defined as all forms of sugar that are added to foods and beverages during processing or preparation. These include brown sugar, cane sugar, confectioner's sugar, coconut sugar, invert sugar, raw sugar, white granulated sugar, corn syrup, high-fructose corn syrup, rice syrup, malt syrup, maple syrup, pancake syrup, fruit juice concentrates, nectar, concentrated vegetable juices, honey, molasses, dextrose, fructose, glucose, maltose, lactose, and agave nectar. There is strong evidence to support recommendations to minimize added sugar intake across the life course.^{22,55}

Dietary patterns high in added sugars are consistently associated with adverse cardiovascular health and higher CVD risk.⁷² Systematic reviews have linked sugar-sweetened beverages to higher risk of obesity, type 2 diabetes, coronary heart disease, and cardiovascular mortality.^{73,74} It has been estimated that adults consuming $\geq 25\%$ of energy from added sugars have a nearly 3-fold higher risk of CVD mortality compared with those consuming $< 10\%$ of energy from added sugars after adjustment for adiposity and other potential confounders.⁷⁵

Feature 8: Choose Foods Low in Sodium and Prepare Foods With Minimal or No Salt

In general, dietary sodium intake and potassium intake have opposite effects on blood pressure, the leading modifiable risk factor for preventable mortality. An increased intake of sodium chloride (salt) raises blood pressure, whereas an increased intake of potassium lowers blood pressure.

Reducing sodium intake lowers blood pressure in both nonhypertensive and hypertensive individuals.⁷⁶ In prospective cohort studies, lower sodium intakes are associated with blunted age-related rise in systolic blood pressure and lower CVD risk, especially in studies with rigorous assessment of sodium intake.^{77,78} In general, the effects of sodium reduction on blood pressure tend to be greater in Black individuals, middle- and older-aged adults, and people with hypertension and diabetes.

Evidence for an independent blood pressure–lowering effect of potassium is consistent but not as persuasive as corresponding evidence for sodium. In meta-analyses of intervention trials, increased potassium intake, from either diet or supplements, lowered blood pressure.⁷⁹ In prospective cohort studies, higher potassium intake was associated with a lower CVD risk.⁷⁸ Potassium intake can be increased by consuming a dietary pattern rich in vegetables and fruits.

Available evidence supports a combined approach of reducing sodium intake and increasing potassium intake for hypertension prevention and control.⁸⁰ This can include reducing sodium intake in the context of a potassium-rich diet such as one high in vegetables and fruits or replacing regular table salt, sodium chloride, with potassium-enriched salt substitutes, which are lower in sodium.⁸¹ Many questions remain for the latter approach, particularly the relevance of salt substitutes in populations in whom the major source of sodium is commercially prepared foods and the theoretical risk of hyperkalemia in people with impaired urinary potassium excretion.⁸²

Feature 9: If Alcohol Is Not Consumed, Do Not Start; if Alcohol Is Consumed, Limit Intake

Understanding the relationship between alcohol intake and CVD is challenging.⁸³ Prospective cohort studies have identified a possible protective association of low/moderate alcohol intake and coronary heart disease risk, but these findings are subject to residual confounding by socioeconomic and lifestyle factors also related to CVD risk. More recent approaches into estimating the impact of alcohol on CVD risk such as mendelian randomization have called these observations into question and identified no significant association between genetically predicted alcohol consumption and risk of coronary artery disease.^{84–86} It is important to note that the relationship between alcohol intake and blood pressure (and the risk for hypertension) appears linear and progressive, beginning at the lowest intake levels.^{83,87}

Based on the new findings, the 2025 American Heart Association/American College of Cardiology blood pressure management guideline recommended avoiding alcohol intake for the prevention or treatment of elevated blood pressure and hypertension.⁸⁸ Avoiding alcohol intake has also been advocated by the US Department of Health and Human Services and the World Health Organization to reduce the risk of certain cancers, including oral, esophageal, breast, liver, and colorectal cancer.^{89,90} Binge drinking and heavy drinking should be strongly discouraged because the health risks for most forms of CVD, including hypertension, among other adverse effects, are well established.⁸³ Initiation of alcohol intake at any level to improve cardiovascular health is not recommended given the

uncertainty about net health effects and especially considering the deleterious effects of alcohol on numerous other outcomes.

ADDITIONAL BENEFITS OF HEART-HEALTHY DIETARY PATTERNS

Heart-Healthy Dietary Patterns Will Result in Desirable Nutrient Profiles

Fulfills Essential Nutrient Requirements for Most Individuals

Heart-healthy dietary patterns are rich in nutrient-dense foods and beverages that contain vitamins, essential minerals, and other health-promoting components.²⁰ Following a heart-healthy dietary pattern will meet nutrient requirements for most people. The benefit of getting nutrients from food rather than supplements is the concurrent presence of phytochemicals that may provide health benefits and avoidance of overconsumption risk for individual nutrients. Following a heart-healthy dietary pattern obviates the need for dietary supplements in most individuals except pregnant women, some older adults, and those following restricted diets.

Rich in Fiber

Dietary fiber is the indigestible carbohydrate component of plants. Dietary fiber supports gastrointestinal function, provides fuel for the gut microbiota, and plays a role in the regulation of blood glucose.^{91–93} Dietary patterns rich in fiber have been associated with reduced risk of CVD, type 2 diabetes, and colorectal cancer.^{94–98} Good sources include vegetables, fruits, whole grains, nuts, legumes, and seeds.

Limits Foods High in Cholesterol

Dietary cholesterol is no longer a primary target for CVD risk reduction for most people. Nevertheless, heart-healthy dietary patterns are low in foods high in cholesterol such as fatty cuts of meat and foods typically eaten with eggs such as processed meats (sausage or bacon).⁹⁹ Moderate egg consumption can be included as part of a heart-healthy dietary pattern.

Facilitates Saturated Fat Intake <10% of Energy

Dietary patterns that adhere to the 9 features outlined in this document are unlikely to exceed 10% of energy from saturated fat.^{20,22}

Consistent With Other Chronic Disease Diet Recommendations

Heart-healthy diets are generally consistent with risk reduction dietary patterns recommended for other conditions such as type 2 diabetes, some cancers, kidney disease, and cognitive health.^{100–108}

SUMMARY

This scientific statement for food-based cardiovascular health optimization and CVD risk reduction guidance summarizes the available evidence and provides contextual guidance for the key components of heart-healthy dietary patterns. It enumerates the collateral benefits of adopting a heart-healthy dietary pattern in terms of nutrient intake adequacy and compatibility with other chronic disease risk reduction guidance. It reinforces the importance of focusing on heart-healthy dietary patterns rather than on single foods or nutrients; adopting healthy eating habits early in life and maintaining them across the life course; and adhering to the guidance regardless of where foods and beverages are procured, prepared, and consumed. The features of a heart-healthy dietary pattern include (1) adjusting energy intake and expenditure to achieve and maintain a healthy body weight; (2) eating plenty of vegetables and fruits and choosing a wide variety; (3) choosing foods made mostly with whole grains rather than refined grains; (4) choosing healthy sources of protein; (5) choosing sources of unsaturated fats in place of sources of saturated fat; (6) choosing minimally processed foods instead of ultraprocessed foods; (7) minimizing intake of added sugars in beverages and foods; (8) reducing sodium intake by choosing foods low in sodium and preparing foods with minimal or

no salt; and (9) if alcohol is not consumed, do not start; if alcohol is consumed, limit intake.

ARTICLE INFORMATION

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

This statement was approved by the American Heart Association Science Advisory and Coordinating Committee on March 8, 2026, and the American Heart Association Executive Committee on March 13, 2026. A copy of the document is available at <https://professional.heart.org/statements> by using either "Search for Guidelines & Statements" or the "Browse by Topic" area. To purchase additional reprints, call 215-356-2721 or email Meredith.Edelman@wolterskluwer.com

The American Heart Association requests that this document be cited as follows: Lichtenstein AH, Khera A, Anderson CAM, Appel LJ, DeSilva DM, Gardner C, Hu FB, Jones DW, Petersen KS; on behalf of the American Heart Association. 2026 Dietary guidance to improve cardiovascular health: a scientific statement from the American Heart Association. *Circulation*. 2026;153:e00000000001435

The expert peer review of AHA-commissioned documents (eg, scientific statements, clinical practice guidelines, systematic reviews) is conducted by the AHA Office of Science Operations. For more on AHA statements and guidelines development, visit <https://professional.heart.org/statements>. Select the "Guidelines & Statements" drop-down menu, then click "Publication Development."

Permissions: Multiple copies, modification, alteration, enhancement, and distribution of this document are not permitted without the express permission of the American Heart Association. Instructions for obtaining permission are located at <https://www.heart.org/permissions>. A link to the "Copyright Permissions Request Form" appears in the second paragraph (<https://www.heart.org/en/about-us/statements-and-policies/copyright-request-form>).



Disclosures

Writing Group Disclosures

Writing group member	Employment	Research grant	Other research support	Speakers' bureau/honoraria	Expert witness	Ownership interest	Consultant/advisory board	Other
Alice H. Lichtenstein	Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University	USDA (Diet Quality and Physical Activity for Healthy Aging and Chronic Disease Mitigation)*; NIH (Tufts Clinical and Translational Science Institute)*; USDA (elucidating the role of gut microbiota derived metabolites in regulating the impact of dietary stearic acid on host cardiometabolic risk status)*; NIH (ingestible pill for spatially targeted sampling of gut microbiome)*; USDA (Full-Fat and Fat-Free Dairy, With and Without Fermentation, on Gut Microbiome, Gut and Serum Metabolome, and Host Cardiometabolic Risk Status)*; USDA (elucidating the effect of dietary stearic acid on the regional heterogeneity of the gut microbiome and metabolome: focus on bile acid metabolism)*	None	None	None	None	None	None
Amit Khera	UT Southwestern Medical Center	None	None	None	None	None	None	None
Cheryl A.M. Anderson	University of California at San Diego	None	None	None	None	None	None	None
Lawrence J. Appel	Johns Hopkins University	Wolters Kluwer (chapters in UpToDate) [†]	None	None	None	None	None	None
Dana M. DeSilva	American Heart Association	None	None	None	None	None	Agriculture, Food, and Nutrition Evidence Centert	None

(Continued)

Writing Group Disclosures (Continued)

Writing group member	Employment	Research grant	Other research support	Speakers' bureau/honoraria	Expert witness	Ownership interest	Consultant/advisory board	Other
Christopher Gardner	Stanford University Medicine/Stanford Prevention Research Center	None	None	None	None	None	None	None
Frank B. Hu	Harvard T.H. Chan School of Public Health	None	None	None	None	None	None	None
Daniel W. Jones	University of Mississippi Medical Center	None	None	None	None	None	None	None
Kristina S. Petersen	Pennsylvania State University	National Cattlemen's Beef Association†; American Pecan Council†; Egg Nutrition Center†; Alliance for Potato Research & Education†; American Pecan Promotion Board†; Cotton Incorporated†; McCormick Science Institute† (PI of grant for all)	None	None	None	None	Potatoes USA*; McCormick Science Institute*; The Peanut Institute*	None

This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$5000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$5000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest.

†Significant.

Reviewer Disclosures

Reviewer	Employment	Research grant	Other research support	Speakers' bureau/honoraria	Expert witness	Ownership interest	Consultant/advisory board	Other
Donna K. Arnett	University of South Carolina	None	None	None	None	None	None	None
Robert H. Eckel	University of Colorado Anschutz Medical Campus	None	None	None	None	None	None	None
Erin P. Ferranti	Emory University	None	None	None	None	None	None	None
Heather M. Johnson	Florida Atlantic University	None	None	None	None	None	American Society for Preventive Cardiology*	None
Sadiya S. Khan	Northwestern University Feinberg School of Medicine	None	None	None	None	None	None	None
Penny M. Kris-Etherton	Pennsylvania State University	None	None	None	None	None	None	None

This table represents the relationships of reviewers that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all reviewers are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$5000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$5000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest.

REFERENCES

- Lichtenstein AH, Appel LJ, Vadiveloo M, Hu FB, Kris-Etherton PM, Rebholz CM, Sacks FM, Thorndike AN, Van Horn L, Wylie-Rosett J; on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular Radiology and Intervention; Council on Clinical Cardiology; and Stroke Council. 2021 Dietary guidance to improve cardiovascular health: a scientific statement from the American Heart Association. *Circulation*. 2021;144:e472–e487. doi: 10.1161/CIR.0000000000001031
- Lloyd-Jones DM, Hong Y, Labarthe D, Mozaffarian D, Appel LJ, Van Horn L, Greenlund K, Daniels S, Nichol G, Tomaselli GF, et al; on behalf of the American Heart Association Strategic Planning Task Force and Statistics Committee. Defining and setting national goals for cardiovascular health promotion and disease reduction: the American Heart Association's strategic Impact Goal through 2020 and beyond. *Circulation*. 2010;121:586–613. doi: 10.1161/CIRCULATIONAHA.109.192703
- Wu Z, Liu B, Wang X, Alessa H, Zeleznik OA, Eliassen H, Clish CB, Wang M, Mukamal KJ, Rimm EB, et al. Effect of low-carbohydrate and low-fat diets on metabolic indices and coronary disease in US individuals [published online January 30, 2026]. *JACC*. doi: 10.1016/j.jacc.2025.12.038. <https://www.jacc.org/doi/10.1016/j.jacc.2025.12.038>
- Jarman M, Mathe N, Ramazani F, Pakseresht M, Robson PJ, Johnson ST, Bell RC, APRON and ENRICH Study Teams. Dietary patterns prior to pregnancy and associations with pregnancy complications. *Nutrients*. 2018;10:914. doi: 10.3390/nu10070914
- Kaikkonen JE, Mikkilä V, Raitakari OT. Role of childhood food patterns on adult cardiovascular disease risk. *Curr Atheroscler Rep*. 2014;16:443. doi: 10.1007/s11883-014-0443-z
- Mikkilä V, Räsänen L, Raitakari OT, Pietinen P, Viikari J. Longitudinal changes in diet from childhood into adulthood with respect to risk of cardiovascular diseases: the Cardiovascular Risk in Young Finns study. *Eur J Clin Nutr*. 2004;58:1038–1045. doi: 10.1038/sj.ejcn.1601929
- López-Gil JF, García-Hermoso A, Martínez-González M, Rodríguez-Artalejo F. Mediterranean diet and cardiometabolic biomarkers in children and

- adolescents: a systematic review and meta-analysis. *JAMA Netw Open*. 2024;7:e2421976. doi: 10.1001/jamanetworkopen.2024.21976
8. US Department of Agriculture and US Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th edition. 2020. Accessed January 11, 2026. <http://DietaryGuidelines.gov>
 9. Estruch R, Ros E, Salas-Salvadó J, Covas MI, Corella D, Arós F, Gómez-Gracia E, Ruiz-Gutiérrez V, Fiol M, Lapetra J, et al; PREDIMED Study Investigators. Primary prevention of cardiovascular disease with a Mediterranean diet supplemented with extra-virgin olive oil or nuts. *N Engl J Med*. 2018;378:e34. doi: 10.1056/NEJMoa1800389
 10. Zhong VW, Ning H, Van Horn L, Carnethon MR, Wilkins JT, Lloyd-Jones DM, Allen NB. Diet quality and long-term absolute risks for incident cardiovascular disease and mortality. *Am J Med*. 2021;134:490-498.e24. doi: 10.1016/j.amjmed.2020.08.012
 11. Mahmood L, Flores-Barrantes P, Moreno LA, Manios Y, Gonzalez-Gil EM. The influence of parental dietary behaviors and practices on children's eating habits. *Nutrients*. 2021;13:1138. doi: 10.3390/nu13041138
 12. Robson SK, Alvarado AV, Baker-Smith CM. Family meals and cardiometabolic risk factors in young children. *Curr Atheroscler Rep*. 2023;25:509-515. doi: 10.1007/s11883-023-01123-0
 13. Chong MF. Dietary trajectories through the life course: opportunities and challenges. *Br J Nutr*. 2022;128:154-159. doi: 10.1017/S0007114522001295
 14. Hu T, Zhou J, Yu L, Li S, Leong ON, Li J, Zhou Y, Jiang Y. Intergenerational transmission of proactive health behaviors among adolescents with overweight or obesity: the mediating role of self-efficacy and family cohesion. *Nutrients*. 2025;17:3377. doi: 10.3390/nu17213377
 15. Palaniappan LP, Allen NB, Almarazqoq ZI, Anderson CAM, Arora P, Avery CL, Baker-Smith CM, Bansal N, Currie ME, Earle RS, et al; on behalf of the American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Committee. 2026 Heart disease and stroke statistics: a report of US and Global Data From the American Heart Association. *Circulation*. 2026;153:e275-e906. doi: 10.1161/CIR.0000000000001412
 16. Deleted in proof.
 17. Ndumele CE, Ranganwami J, Chow SL, Neeland IJ, Tuttle KR, Khan SS, Coresh J, Mathew RO, Baker-Smith CM, Carnethon MR, et al; on behalf of the American Heart Association. Cardiovascular-kidney-metabolic health: a presidential advisory from the American Heart Association [published correction appears in *Circulation*. 2024;149:e1023]. *Circulation*. 2023;148:1606-1635. doi: 10.1161/CIR.0000000000001184
 18. US Department of Health and Human Services. *Physical Activity Guidelines for Americans*. 2nd edition. 2018. Accessed January 27, 2026. <https://odphp.health.gov/our-work/nutrition-physical-activity/physical-activity-guidelines/current-guidelines>
 19. Paluch AE, Boyer WR, Franklin BA, Laddu D, Lobelo F, Lee DC, McDermott MM, Swift DL, Weibel AR, Lane A; on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Clinical Cardiology; Council on Cardiovascular and Stroke Nursing; Council on Epidemiology and Prevention; and Council on Peripheral Vascular Disease. Resistance exercise training in individuals with and without cardiovascular disease: 2023 update: a scientific statement from the American Heart Association. *Circulation*. 2024;149:e217-e231. doi: 10.1161/CIR.0000000000001189
 20. Gardner CD, Vadiveloo MK, Petersen KS, Anderson CAM, Springfield S, Van Horn L, Kherra A, Lamendola C, Mayo SM, Joseph JJ; on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health. Popular dietary patterns: alignment with American Heart Association 2021 dietary guidance: a scientific statement from the American Heart Association. *Circulation*. 2023;147:1715-1730. doi: 10.1161/CIR.0000000000001146
 21. Schmidt T, Harmon DM, Kludtke E, Mickow A, Simha V, Kopecky S. Dramatic elevation of LDL cholesterol from ketogenic-dieting: a case series. *Am J Prev Cardiol*. 2023;14:100495. doi: 10.1016/j.ajpc.2023.100495
 22. 2025 Dietary Guidelines Advisory Committee. *Scientific Report of the 2025 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and Secretary of Agriculture*. US Department of Health and Human Services; 2024. doi: 10.52570/DGAC2025
 23. Anderson C, Gardner C, Talegawkar S, Hoelscher DM, Stanford FC, Tobias D, Booth S, Fung T, Deierlein A, Giovannucci E, et al. *Dietary Patterns and Risk of Cardiovascular Disease: A Systematic Review*. US Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review; 2024. doi: 10.52570/NESR.DGAC2025.SR13
 24. Geravand F, Montazer M, Mousavi SM, Azadbakht L. Fruit and vegetable consumption and risk of all-cause and cause-specific mortality in individuals with type 2 diabetes: a systematic review and dose-response meta-analysis of prospective cohort studies. *Nutr Rev*. 2025;83:1450-1461. doi: 10.1093/nutrit/nuaf013
 25. Talegawkar S, Tobias D, Fung T, Giovannucci E, Hoelscher DM, Anderson CAM, Booth S, Deierlein A, Gardner C, Raynor H, et al. *Dietary Patterns and Risk of Type 2 Diabetes: A Systematic Review*. US Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review; 2024. doi: 10.52570/NESR.DGAC2025.SR12
 26. Wang DD, Li Y, Bhupathiraju SN, Rosner BA, Sun Q, Giovannucci EL, Rimm EB, Manson JE, Willett WC, Stampfer MJ, et al. Fruit and vegetable intake and mortality: results from 2 prospective cohort studies of US Men and women and a meta-analysis of 26 cohort studies. *Circulation*. 2021;143:1642-1654. doi: 10.1161/CIRCULATIONAHA.120.048996
 27. Ferruzzi MG, Jonnalagadda SS, Liu S, Marquart L, McKeown N, Reicks M, Riccardi G, Seal C, Slavin J, Thielecke F, et al. Developing a standard definition of whole-grain foods for dietary recommendations: summary report of a multidisciplinary expert roundtable discussion. *Adv Nutr*. 2014;5:164-176. doi: 10.3945/an.113.005223
 28. Hu H, Zhao Y, Feng Y, Yang X, Li Y, Wu Y, Yuan L, Zhang J, Li T, Huang H, et al. Consumption of whole grains and refined grains and associated risk of cardiovascular disease events and all-cause mortality: a systematic review and dose-response meta-analysis of prospective cohort studies. *Am J Clin Nutr*. 2023;117:149-159. doi: 10.1016/j.ajcnut.2022.10.010
 29. Huang H, Lu W, Hu X, Chen X, Shu G, Wang J, Zhu M, Zhang Z, Zhang S. The impact of whole grain consumption on metabolic health: an umbrella review of systematic reviews and meta-analyses of randomized controlled trials. *Food Funct*. 2025;16:8925-8942. doi: 10.1039/d5fo03240g
 30. Cortijo-Alfonso ME, Romero MP, Macià A, Yuste S, Moralejo M, Rubió-Piqué L, Piñol-Felis C. Effect of barley and oat consumption on immune system, inflammation and gut microbiota: a systematic review of randomized controlled trials. *Curr Nutr Rep*. 2024;13:582-597. doi: 10.1007/s13668-024-00543-x
 31. Balk EM, Couch E, Mai HJ, Chen Y, Adam GP, Kanaan G, Caputo EL, Trikalinos TA, Williams G, Duncanson K, et al. Fiber intake and laxation in people with normal bowel function: a systematic review. *Am J Clin Nutr*. 2026;123:101212. doi: 10.1016/j.ajcnut.2026.101212
 32. Burstad KM, Lamina T, Erickson A, Gholizadeh E, Namigga H, Claussen AM, Slavin JL, Teigen L, Hill Gallant KM, Stang J, et al. Evaluation of dietary protein and amino acid requirements: a systematic review. *Am J Clin Nutr*. 2025;122:285-305. doi: 10.1016/j.ajcnut.2025.04.017
 33. Mendes V, Niforou A, Kasdagli MI, Ververis E, Naska A. Intake of legumes and cardiovascular disease: a systematic review and dose-response meta-analysis. *Nutr Metab Cardiovasc Dis*. 2023;33:22-37. doi: 10.1016/j.numecd.2022.10.006
 34. Bäck S, Päivärinta E, Pellinen T, Itkonen ST, Lehtovirta M, Erkkola M, Kaartinen NE, Männistö S, Pajari AM. Nutritional and health benefits of a partial substitution of red and processed meat with non-soy legumes: a 6-week randomized controlled trial in healthy working-age men. *Eur J Nutr*. 2025;64:259. doi: 10.1007/s00394-025-03783-x
 35. Simojoki M, Kaartinen NE, Maukonen M, Harald K, Tapanainen H, Albanes D, Eriksson JG, Jousilahti P, Koskinen S, Pajari AM, et al. Partial substitution of red or processed meat with plant-based foods and the risk of cardiovascular disease. *Eur J Epidemiol*. 2025;40:517-525. doi: 10.1007/s10654-025-01232-x
 36. Liu M, Wang M, Fu X, He X, Wang M, Su Y, Liu G, Hu F, Zhang M, Zhao Y, et al. Nut consumption and risk of cardiovascular disease events and all-cause mortality: a systematic review and dose-response meta-analysis of prospective cohort studies [published online September 19, 2025]. *Arch Cardiovasc Dis*. doi: 10.1016/j.acvd.2025.08.010. <https://www.sciencedirect.com/science/article/pii/S1875213625004656?via%3Dihub>
 37. Suprono MS, Shavlik DJ, Butler FM, Sabatè J, Fraser GE, Orlich MJ. Nut consumption and risk of cardiovascular disease and ischemic heart disease mortality: the Adventist Health Study 2. *J Nutr*. 2025;155:4465-4475. doi: 10.1016/j.tjnut.2025.10.022
 38. Gouela M, Stergiadis S, Clegg ME. The nutritional composition and impact on UK dietary intakes of meat and plant-based meat alternatives. *NPJ Sci Food*. 2025;9:217. doi: 10.1038/s41538-025-00577-7
 39. Jurek J, Owczarek M, Godos J, La Vignera S, Condorelli RA, Marventano S, Tieri M, Ghelfi F, Titta L, Lafranconi A, et al. Fish and human health: an

- umbrella review of observational studies. *Int J Food Sci Nutr*. 2022;73:851–860. doi: 10.1080/09637486.2022.2090520
40. Krittanawong C, Isath A, Hahn J, Wang Z, Narasimhan B, Kaplin SL, Jneid H, Virani SS, Tang WHW. Fish consumption and cardiovascular health: a systematic review. *Am J Med*. 2021;134:713–720. doi: 10.1016/j.amjmed.2020.12.017
 41. Enget Jensen TM, Braaten T, Jacobsen BK, Ibsen DB, Skeie G. Replacing red and processed meat with lean or fatty fish and all-cause and cause-specific mortality in Norwegian women: the Norwegian Women and Cancer Study (NOWAC): a prospective cohort study. *Br J Nutr*. 2024;131:531–543. doi: 10.1017/S0007114523002040
 42. Djuricic I, Calder PC. N-3 fatty acids (EPA and DHA) and cardiovascular health: updated review of mechanisms and clinical outcomes. *Curr Atheroscler Rep*. 2025;27:116. doi: 10.1007/s11883-025-01363-2
 43. Esmailinezhad Z, Torbahn G, Johnston BC. Medical nutrition therapy (MNT) evidence update: comparative effectiveness of dietary programs for reducing mortality and cardiovascular events in adults with increased cardiovascular disease risk. *Adv Nutr*. 2025;16:100399. doi: 10.1016/j.advnut.2025.100399
 44. Manson JE, Cook NR, Lee IM, Christen W, Bassuk SS, Mora S, Gibson H, Albert CM, Gordon D, Copeland T, et al; VITAL Research Group. Marine n-3 fatty acids and prevention of cardiovascular disease and cancer. *N Engl J Med*. 2019;380:23–32. doi: 10.1056/NEJMoa1811403
 45. Gardner C, Hoelscher DM, Tobias D, Anderson CAM, Taylor C, Booth S, Deierlein A, Fung T, Giovannucci E, Raynor H, et al. *Food Sources of Saturated Fat and Risk of Cardiovascular Disease: A Systematic Review*. US Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review; 2024.
 46. Hooper L, Martin N, Jimoh OF, Kirk C, Foster E, Abdelhamid AS. Reduction in saturated fat intake for cardiovascular disease. *Cochrane Database Syst Rev*. 2020;8:CD011737. doi: 10.1002/14651858.CD011737.pub3
 47. Black EG, Bugarcic A, Lauche R, El-Omar E, El-Assaad F. The effects of kefir on the human oral and gut microbiome. *Nutrients*. 2025;17:3861. doi: 10.3390/nu17243861
 48. Nestel PJ, Mori TA. Dairy foods: beneficial effects of fermented products on cardiometabolic health. *Curr Nutr Rep*. 2023;12:478–485. doi: 10.1007/s13668-023-00476-x
 49. López-Moreno M, López-Gil JF, Bravo-Sánchez A, Bertotti G, Roldán-Ruiz A. Effect of red meat consumption on cardiovascular risk factors: a systematic review and Bayesian network meta-analysis of randomized controlled trials. *Clin Nutr*. 2025;54:12–26. doi: 10.1016/j.clnu.2025.09.001
 50. Hidayat K, Chen JS, Wang HP, Wang TC, Liu YJ, Zhang XY, Rao CP, Zhang JW, Qin LQ. Is replacing red meat with other protein sources associated with lower risks of coronary heart disease and all-cause mortality? A meta-analysis of prospective studies. *Nutr Rev*. 2022;80:1959–1973. doi: 10.1093/nutrit/nuac017
 51. Li-Hua P, Bajinka O. Processed meat health risks: pathways and dietary solutions. *J Nutr*. 2025;155:3584–3594. doi: 10.1016/j.tjnut.2025.08.030
 52. van den Brandt PA. Red meat, processed meat, and other dietary protein sources and risk of overall and cause-specific mortality in The Netherlands Cohort Study. *Eur J Epidemiol*. 2019;34:351–369. doi: 10.1007/s10654-019-00483-9
 53. Ference BA, Ginsberg HN, Graham I, Ray KK, Packard CJ, Bruckert E, Hegele RA, Krauss RM, Raal FJ, Schunkert H, et al. Low-density lipoproteins cause atherosclerotic cardiovascular disease, 1: evidence from genetic, epidemiologic, and clinical studies: a consensus statement from the European Atherosclerosis Society Consensus Panel. *Eur Heart J*. 2017;38:2459–2472. doi: 10.1093/eurheartj/ehx144
 54. Mensink RP. *Effects of Saturated Fatty Acids on Serum Lipids and Lipoproteins: A Systematic Review and Regression Analysis*. World Health Organization; 2016. doi: http://www.who.int/stable/resrep44279.1
 55. 2020 Dietary Guidelines Advisory Committee. *Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and Secretary of Agriculture*. US Department of Agriculture, Agricultural Research Service. doi: 10.52570/DGAC2020
 56. Sacks FM, Lichtenstein AH, Wu JHY, Appel LJ, Creager MA, Kris-Etherton PM, Miller M, Rimm EB, Rudel LL, Robinson JG, et al; on behalf of the American Heart Association. Dietary fats and cardiovascular disease: a presidential advisory from the American Heart Association [published correction appears in *Circulation*. 2017;136:e195]. *Circulation*. 2017;136:e1–e23. doi: 10.1161/CIR.00000000000000510
 57. Zhang Y, Chadaideh KS, Li Y, Li Y, Gu X, Liu Y, Guasch-Ferré M, Rimm EB, Hu FB, Willett WC, et al. Butter and plant-based oils intake and mortality. *JAMA Intern Med*. 2025;185:549–560. doi: 10.1001/jamainternmed.2025.0205
 58. Denke MA, Grundy SM. Effects of fats high in stearic acid on lipid and lipoprotein concentrations in men. *Am J Clin Nutr*. 1991;54:1036–1040. doi: 10.1093/ajcn/54.6.1036
 59. Reiser R, Probstfield JL, Silvers A, Scott LW, Shorney ML, Wood RD, O'Brien BC, Gotto AM Jr, Insull W Jr. Plasma lipid and lipoprotein response of humans to beef fat, coconut oil and safflower oil. *Am J Clin Nutr*. 1985;42:190–197. doi: 10.1093/ajcn/42.2.190
 60. Schwab US, Vogel S, Lammi-Keefe CJ, Ordovas JM, Schaefer EJ, Li Z, Ausman LM, Gualtieri L, Goldin BR, Furr HC, et al. Varying dietary fat type of reduced-fat diets has little effect on the susceptibility of LDL to oxidative modification in moderately hypercholesterolemic subjects. *J Nutr*. 1998;128:1703–1709. doi: 10.1093/jn/128.10.1703
 61. Desjardins LC, Briere F, Tremblay AJ, Rancourt-Bouchard M, Drouin-Chartier JP, Corbeil J, Lemelin V, Charest A, Schaefer EJ, Lamarche B, et al. Substitution of dietary monounsaturated fatty acids from olive oil for saturated fatty acids from lard increases LDL apolipoprotein B-100 fractional catabolic rate in subjects with dyslipidemia associated with insulin resistance: a randomized controlled trial. *Am J Clin Nutr*. 2024;119:1270–1279. doi: 10.1016/j.ajcnut.2024.03.015
 62. Teng KT, Loganathan R, Chew BH, Khang TF. Diverse impacts of red palm olein, extra virgin coconut oil and extra virgin olive oil on cardiometabolic risk markers in individuals with central obesity: a randomised trial. *Eur J Nutr*. 2024;63:1225–1239. doi: 10.1007/s00394-024-03338-6
 63. Albuquerque TG, Bragotto APA, Costa HS. Processed food: nutrition, safety, and public health. *Int J Environ Res Public Health*. 2022;19:16410. doi: 10.3390/ijerph192416410
 64. Macdonald LE, Brett J, Kelton D, Majowicz SE, Snedeker K, Sargeant JM. A systematic review and meta-analysis of the effects of pasteurization on milk vitamins, and evidence for raw milk consumption and other health-related outcomes. *J Food Prot*. 2011;74:1814–1832. doi: 10.4315/0362-028X.JFP-10-269
 65. Trumbo PR, Bleiweiss-Sande R, Campbell JK, Decker E, Drewnowski A, Erdman JW, Ferruzzi MG, Forde CG, Gibney MJ, Hess JM, et al. Toward a science-based classification of processed foods to support meaningful research and effective health policies. *Front Nutr*. 2024;11:1389601. doi: 10.3389/fnut.2024.1389601
 66. US Food and Drug Administration. Food additives and GRAS ingredients information for consumers. Accessed February 4, 2026. <https://fda.gov/food/food-ingredients-packaging/food-additives-and-gras-ingredients-information-consumers>
 67. Monteiro CA, Louzada ML, Steele-Martinez E, Cannon G, Andrade GC, Baker P, Bes-Rastrollo M, Bonaccio M, Gearhardt AN, Khandpur N, et al. Ultra-processed foods and human health: the main thesis and the evidence. *Lancet*. 2025;406:2667–2684. doi: 10.1016/S0140-6736(25)01565-X
 68. Chen Z, Khandpur N, Desjardins C, Wang L, Monteiro CA, Rossato SL, Fung TT, Manson JE, Willett WC, Rimm EB, et al. Ultra-processed food consumption and risk of type 2 diabetes: three large prospective U.S. cohort studies. *Diabetes Care*. 2023;46:1335–1344. doi: 10.2337/dc22-1993
 69. Moradi S, Entezari MH, Mohammadi H, Jayedi A, Lazaridi AV, Kermani MAH, Miraghajani M. Ultra-processed food consumption and adult obesity risk: a systematic review and dose-response meta-analysis. *Crit Rev Food Sci Nutr*. 2023;63:249–260. doi: 10.1080/10408398.2021.1946005
 70. Yuan L, Hu H, Li T, Zhang J, Feng Y, Yang X, Li Y, Wu Y, Li X, Huang H, et al. Dose-response meta-analysis of ultra-processed food with the risk of cardiovascular events and all-cause mortality: evidence from prospective cohort studies. *Food Funct*. 2023;14:2586–2596. doi: 10.1039/d2fo02628g
 71. Vadviloo MK, Gardner CD, Bleich SN, Khandpur N, Lichtenstein AH, Otten JJ, Rebolz CM, Singleton CR, Vos MB, Wang S; on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Genomic and Precision Medicine; and Stroke Council. Ultra-processed foods and their association with cardiometabolic health: evidence, gaps, and opportunities: a science advisory from the American Heart Association [published correction appears in *Circulation*. 2025;152:e264]. *Circulation*. 2025;152:e245–e263. doi: 10.1161/CIR.0000000000001365
 72. Lichtenstein AH. Last nail in the coffin for sugar-sweetened beverages. *Circulation*. 2019;139:2126–2128. doi: 10.1161/CIRCULATIONAHA.119.040245
 73. Malik VS, Li Y, Pan A, De Koning L, Schernhammer E, Willett WC, Hu FB. Long-term consumption of sugar-sweetened and artificially sweetened beverages and risk of mortality in US adults. *Circulation*. 2019;139:2113–2125. doi: 10.1161/CIRCULATIONAHA.118.037401
 74. Meng Y, Li S, Khan J, Dai Z, Li C, Hu X, Shen Q, Xue Y. Sugar- and artificially sweetened beverages consumption linked to type 2 diabetes, cardiovascular

- diseases, and all-cause mortality: a systematic review and dose-response meta-analysis of prospective cohort studies. *Nutrients*. 2021;13:2636. doi: 10.3390/nu13082636
75. Yang Q, Zhang Z, Gregg EW, Flanders WD, Merritt R, Hu FB. Added sugar intake and cardiovascular diseases mortality among US adults. *JAMA Intern Med*. 2014;174:516–524. doi: 10.1001/jamainternmed.2013.13563
 76. National Academy of Sciences, Engineering, and Medicine. *Dietary Reference Intakes for Sodium and Potassium*. National Academies Press; 2023.
 77. INTERSALT: an international study of electrolyte excretion and blood pressure: results for 24 hour urinary sodium and potassium excretion: INTERSALT Cooperative Research Group. *BMJ*. 1988;297:319–328. doi: 10.1136/bmj.297.6644.319
 78. Ma Y, He FJ, Sun Q, Yuan C, Kieneker LM, Curhan GC, MacGregor GA, Bakker SJL, Campbell NRC, Wang M, et al. 24-Hour urinary sodium and potassium excretion and cardiovascular risk. *N Engl J Med*. 2022;386:252–263. doi: 10.1056/NEJMoa2109794
 79. Filippini T, Naska A, Kasdagli MI, Torres D, Lopes C, Carvalho C, Moreira P, Malavolti M, Orsini N, Whelton PK, et al. Potassium intake and blood pressure: a dose-response meta-analysis of randomized controlled trials. *J Am Heart Assoc*. 2020;9:e015719. doi: 10.1161/JAHA.119.015719
 80. Sacks FM, Svetkey LP, Vollmer WM, Appel LJ, Bray GA, Harsha D, Obarzanek E, Conlin PR, Miller ER 3rd, Simons-Morton DG, et al; DASH-Sodium Collaborative Research Group. Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet: DASH-Sodium Collaborative Research Group. *N Engl J Med*. 2001;344:3–10. doi: 10.1056/NEJM200101043440101
 81. Neal B, Wu Y, Feng X, Zhang R, Zhang Y, Shi J, Zhang J, Tian M, Huang L, Li Z, et al. Effect of salt substitution on cardiovascular events and death. *N Engl J Med*. 2021;385:1067–1077. doi: 10.1056/NEJMoa2105675
 82. Greer RC, Marklund M, Anderson CAM, Cobb LK, Dalcin AT, Henry M, Appel LJ. Potassium-enriched salt substitutes as a means to lower blood pressure: benefits and risks. *Hypertension*. 2020;75:266–274. doi: 10.1161/HYPERTENSIONAHA.119.13241
 83. Piano MR, Marcus GM, Aycock DM, Buckman J, Hwang CL, Larsson SC, Mukamal KJ, Roerecke M; on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; and Stroke Council. Alcohol use and cardiovascular disease: a scientific statement from the American Heart Association. *Circulation*. 2025;152:e7–e21. doi: 10.1161/CIR.0000000000001341
 84. Biddinger KJ, Emdin CA, Haas ME, Wang M, Hindy G, Ellinor PT, Kathiresan S, Khera AV, Aragam KG. Association of habitual alcohol intake with risk of cardiovascular disease. *JAMA Netw Open*. 2022;5:e223849. doi: 10.1001/jamanetworkopen.2022.3849
 85. Carr S, Bryazka D, McLaughlin SA, Zheng P, Bahadursingh S, Aravkin AY, Hay SI, Lawlor HR, Mullany EC, Murray CJL, et al. Burden of proof study on alcohol consumption and ischemic heart disease. *Nat Commun*. 2024;15:4082. doi: 10.1038/s41467-024-47632-7
 86. Gupta S, Ahimsadasan N, Dalsania K, Jing L, Waraich H, Gupta K, Kaminska M, Balamane S, Garcia-Zamora S, Miranda-Arboleda AF, et al. Alcohol and cardiovascular disease. *Am J Cardiol*. 2026;259:132–138. doi: 10.1016/j.amjcard.2025.09.035
 87. Cecchini M, Filippini T, Whelton PK, Iamandii I, Di Federico S, Boriani G, Vinceti M. Alcohol intake and risk of hypertension: a systematic review and dose-response meta-analysis of nonexperimental cohort studies. *Hypertension*. 2024;81:1701–1715. doi: 10.1161/HYPERTENSIONAHA.124.22703
 88. Jones DW, Ferdinand KC, Taler SJ, Johnson HM, Shimbo D, Abdalla M, Altieri MM, Bansal N, Bello NA, Bress AP, et al; Writing Committee Members. 2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM guideline for the prevention, detection, evaluation and management of high blood pressure in adults: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines [published correction appears in *Hypertension*. 2025;82:e350]. *Hypertension*. 2025;82:e212–e316. doi: 10.1161/HYP0000000000000249
 89. Office of the Surgeon General. *Alcohol and Cancer Risk*. US Department of Health and Human Services; 2025.
 90. World Health Organization. Alcohol and cancer. Accessed February 4, 2026. <https://who.int/europe/news-room/fact-sheets/item/alcohol-and-cancer>
 91. Colak H, Larik GN, van Baak MA, Canfora EE. Effects of isolated single fibers, fiber mixtures, and fiber-rich whole foods on glucose homeostasis in individuals with overweight and obesity: a systematic review and meta-analysis. *Clin Nutr*. 2025;52:236–251. doi: 10.1016/j.clnu.2025.08.003
 92. Pugh JE, Chambers ES. Dietary fibre and the gut microbiome: implications for glucose homeostasis. *Curr Opin Clin Nutr Metab Care*. 2025;28:483–488. doi: 10.1097/MCO.0000000000001160
 93. Thomas MS, Calle M, Fernandez ML. Healthy plant-based diets improve dyslipidemias, insulin resistance, and inflammation in metabolic syndrome: a narrative review. *Adv Nutr*. 2023;14:44–54. doi: 10.1016/j.advnut.2022.10.002
 94. Arayici ME, Mert-Ozipek N, Yalcin F, Basbinar Y, Ellidokuz H. Soluble and insoluble dietary fiber consumption and colorectal cancer risk: a systematic review and meta-analysis. *Nutr Cancer*. 2022;74:2412–2425. doi: 10.1080/01635581.2021.2008990
 95. Brlek A, Gregorić M. Diet quality indices and their associations with all-cause mortality, CVD and type 2 diabetes mellitus: an umbrella review. *Br J Nutr*. 2023;130:709–718. doi: 10.1017/S0007114522003701
 96. Giovannucci E, Fung T, Anderson CAM, Booth S, Deierlein A, Gardner C, Hoelscher DM, Raynor H, Stanford FC, et al. *Dietary Patterns and Risk of Colorectal Cancer: A Systematic Review*. US Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review; 2025. doi: 10.52570/NESR.DGAC2025.SR22
 97. Mazur M, Przytuła A, Szymańska M, Popiolek-Kalisz J. Dietary strategies for cardiovascular disease risk factors prevention. *Curr Probl Cardiol*. 2024;49:102746. doi: 10.1016/j.cpcardiol.2024.102746
 98. Zhang L, Chen Y, Yang Q, Guo J, Zhou S, Zhong T, Xiao Y, Yu X, Feng K, Peng Y, et al. The impact of dietary fiber on cardiovascular diseases: a scoping review. *Nutrients*. 2025;17:444. doi: 10.3390/nu17030444
 99. Carson JAS, Lichtenstein AH, Anderson CAM, Appel LJ, Kris-Etherton PM, Meyer KA, Petersen K, Polonsky T, Van Horn L, on behalf of the American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology; Council on Peripheral Vascular Disease; and Stroke Council. Dietary cholesterol and cardiovascular risk: a science advisory from the American Heart Association. *Circulation*. 2020;141:e39–e53. doi: 10.1161/CIR.0000000000000743
 100. American Diabetes Association Professional Practice Committee for Diabetes. Prevention or delay of diabetes and associated comorbidities: Standards of Care in Diabetes—2026. *Diabetes Care*. 2026;49:S50–S60. doi: 10.2337/dc26-S003
 101. Glenn AJ, Li J, Lo K, Jenkins DJA, Boucher BA, Hanley AJ, Kendall CWC, Shadyab AH, Tinker LF, Chessler SD, et al. The Portfolio Diet and incident type 2 diabetes: findings from the Women's Health Initiative prospective cohort study. *Diabetes Care*. 2023;46:28–37. doi: 10.2337/dc22-1029
 102. Kranz S, Sharma B, Pourafshar S, Mallawaarachchi I, Ma JZ, Scialla JJ. Fruit and vegetable intake patterns, kidney failure, and mortality in adults with and without chronic kidney disease in the United States. *J Nutr*. 2024;154:2205–2214. doi: 10.1016/j.tjn.2024.05.008
 103. Lin X, Wang S, Huang J. The association between the EAT-Lancet Diet and diabetes: a systematic review. *Nutrients*. 2023;15:4462. doi: 10.3390/nu15204462
 104. Lu YP, Xia B, Wang XH, He QS, Qu CB, Xie YY, Cui TJ, Wu SQ, Zhao JY, Zheng ZH, et al. Healthy dietary patterns and the incidence of chronic kidney disease: results from a prospective cohort study. *BMC Public Health*. 2025;25:511. doi: 10.1186/s12889-025-21652-4
 105. Maroto-Rodriguez J, Ortolá R, Cabanas-Sanchez V, Martinez-Gomez D, Rodriguez-Artalejo F, Sotos-Prieto M. Diet quality patterns and chronic kidney disease incidence: a UK Biobank cohort study. *Am J Clin Nutr*. 2025;121:445–453. doi: 10.1016/j.ajcnut.2024.12.005
 106. Quintela B, Carioca AAF, de Oliveira JGR, Fraser SDS, da Silva GB Jr. Dietary patterns and chronic kidney disease outcomes: a systematic review. *Nephrology (Carlton)*. 2021;26:603–612. doi: 10.1111/nep.13883
 107. Rock CL, Thomson C, Gansler T, Gapstur SM, McCullough ML, Patel AV, Andrews KS, Bandera EV, Spees CK, Robien K, et al. American Cancer Society guideline for diet and physical activity for cancer prevention. *CA Cancer J Clin*. 2020;70:245–271. doi: 10.3322/caac.21591
 108. Booth S, Talegawkar S, Fung T, Hoelscher DM, Anderson CAM, Deierlein A, Gardner C, Giovannucci E, Raynor H, Stanford FC, et al. *Dietary Patterns and Risk of Cognitive Decline, Dementia, Alzheimer's Disease, and Mild Cognitive Impairment: A Systematic Review*. US Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review; 2024. doi: 10.52570/NESR.DGAC2025.SR20